

Interactive comment on “Observations of a stratospheric aerosol veil from a tropical volcanic eruption in December 1808: is this the “Unknown” ~ 1809 eruption?” by A. Guevara-Murua et al.

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General comments

This is an excellent paper trying to clarify the location and timing of a major eruption which took place somewhere around 1808-1809. The evidence provided from historical 19th century southern hemisphere literature is well documented and the paper is well structured and well written. It is a significant contribution to this mysterious eruption and can be accepted as is. Specific comments: Page 1905 The discussion on Laki eruption and its effects in Europe can be a little bit strengthened by providing information from Luterbacher et al., Science, 2004. Moreover, concerning the AOD following

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the unknown eruption of 1808/1809, I have had a quick look at the list of paintings at the Tate and found a painting by John Crome entitled “Moonrise of the Yare” which was painted between 1811-1816. In the painting the mean R/G ratio is 1.4 and the calculated AOD corresponding to a solar zenith angle of 100 deg. was found to be about 0.2. Year 1811 is close to the e-fold of the 0.28 AOD estimated by Crowley and Unterman (2013) but to me it may well be that the painting was painted closer to 1816 and represents rather the Tambora effects (see Zerefos et al 2007, 2014). I think the paper is interesting and as the other reviewing colleagues have pointed out will provide a new look at bringing together geophysicists and historians in unrevealing mysteries such as that of the unknown (?) eruption.

References 1. Luberbacher, J., D. Dietrich, E. Xoplaki, M. Grosjean and H. Wanner “European seasonal and annual temperature variability, trends and extremes since 1500j”, *Science*, 303 (1499-1503), 2004 2. Crowley, T.J. and Unterman, M.B., “Technical details concerning development of a 1200 yr proxy index for global volcanism”, *Earth Syst. Sci. Data*, 5(1), 187-197, doi: 10.5194/essd-5-187-2013, 2013 3. Zerefos, C.S., P. Tetsis, A. Kazantzidis, V. Amiridis, S.C. Zerefos, J. Luterbahcer, K. Eleftheratos, E. Gerasopoulos, S. Kazadzis, A. Papayannis, “Further evidence of important environmental information content in red-to-green ratios as depicted in paintings by great masters”, *Atmos. Chem. Phys.*, 14, 1-29, doi: 10.5194/acp-14-1-2014, 2014.

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